

MI888

Intel® Pineview-M/ Pineview-D +ICH8M
Luna-Pier / Luna-Pier Refresh Platform
MiniITX Motherboard

USER'S MANUAL

Version 1.0

Acknowledgments

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Introduction



MI888 MINI ITX MOTHERBOARD



MI888 EDGE CONNECTORS

Checklist

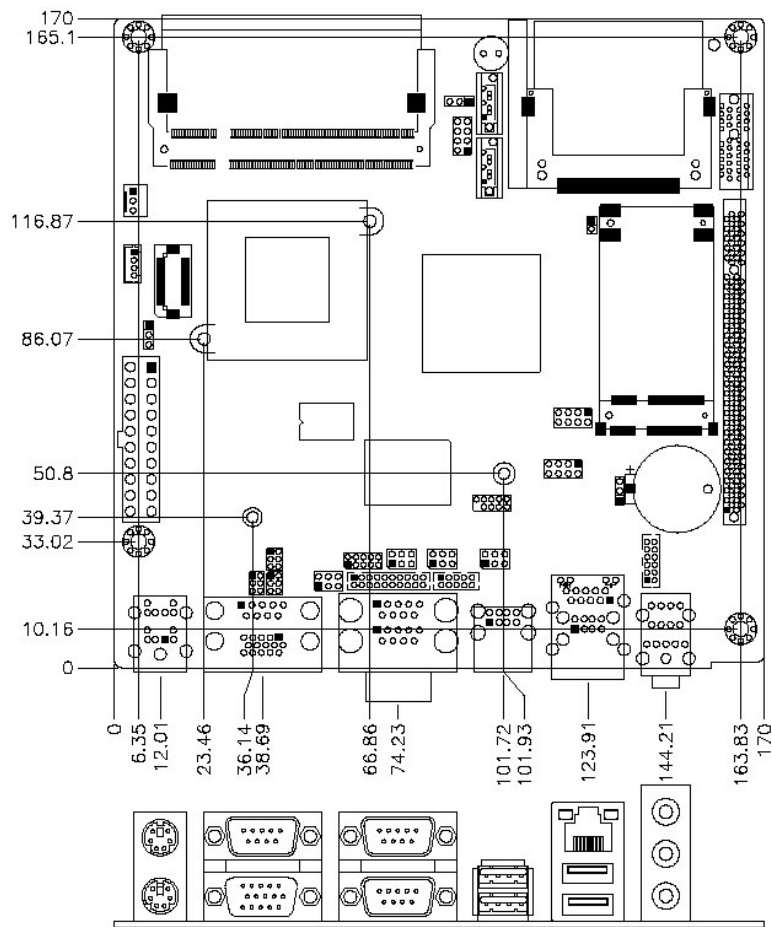
Your MI888 package should include the items listed below.

- The MI888 Intel® Luna-Pier Mini-ITX motherboard
- This User's Manual
- 1 CD containing chipset drivers and flash memory utility
- Cable kit (USB, Serial port, Serial ATA)

MI888 Specifications

Form Factor	MiniITX
CPU Type	Intel® Pineview-M & Pineview-D Microprocessor (45nm Technology)
CPU Speed	Atom SC N450 1.66 GHz/ 512KB L2 cache (MI888) Atom DC D510 1.66GHz / 1MB L2 cache (MI888-D5)
Green /APM	APM1.2
BIOS	AMI BIOS, support ACPI Function
Chipset	Intel® Luna-Pier / Luna-Pier Refresh platform Pineview-M : 22mm x 22mm, Micro-FCBGA8 (5.5W) or Pineview-D : 22mm x 22mm, Micro-FCBGA8 (13W for DC) ICH8M: 31mm x 31mm, 676-pin T-PBGA (2.4W)
Memory	DDR2 667MHz N450 supports SO-DIMM x 1 (w/o ECC), Max. 1GB , Single channel D510 supports SO-DIMM x 1 (w/o ECC), Max. 2 GB , Single channel
VGA	Intel® Integrated Graphics Controller Luna Pier supports DirectX 9 Graphic (200MHz) Luna Pier Refresh supports DirectX 9 Graphic (400MHz) OpenGL 1.4
LVDS	18-bit one channels LVDS interface w/DF13 socket x1
LAN	Realtek 8111 DL x 1
USB	ICH8M built-in USB 2.0 host controller, support 8 ports
Serial ATA Ports	ICH8M built-in SATA controller, supports 2 ports
Parallel IDE	ICH8M built-in one channel Ultra DMA 33/66/100, for CF Type II (Component side)
Audio	Intel ICH8M built-in audio controller w/ Realtek ALC662 Codec Supports 5.1 CH audio (Line-out, Line-in & MIC)
LPC I/O	Winbond W83627UHG : COM1 (RS232/422/485), COM2(RS232), COM3 (RS232), COM4 (RS232), with pin-9 with power for 4 ports (500 mA for each port) Hardware monitor (2 thermal inputs, 4 voltage monitor inputs, VIDO-4 & 1 x Fan Header)
Digital IO	4 in & 4 out
KB/Mouse Connector	Yes
Expansion Slots	Mini PCI-express socket x 1 for Wireless LAN or other module PCI + PCI-Express(1x) slot x1
Edge Connector	PS/2 KBMS connector x 1 DB15 + DB9 Stack connector x1 for VGA+COM 1 Dual DB9 Stack connector x 1 for COM2,3 RJ45 + Dual USB stack connector x1 for LAN 1 + USB 1,2 Dual USB stack connector x 1 for USB 3, 4 Audio 3-port connector x 1 (Line-out, Line-in, MIC)
On Board Header/Connector	2x4 pins header x 2 for 4 USB ports LVDS (DF13 X 1) Mini PCI-e connector x 1 12 pins header x1 for front audio DF11-10 pins box header x 1 for COM4 CF type II connector x 1 2x5 pins header x 1 for Digital I/O
Watchdog Timer	Yes (256 segments, 0, 1, 2...255 sec/min)
Power Connector	ATX (20-pins)
Board Size	170mm x 170mm

Board Dimensions



Installations

This section provides information on how to use the jumpers and connectors on the MI888 in order to set up a workable system. The topics covered are:

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Installing the Memory

The MI888 board supports one DDR667 DDR2 memory.

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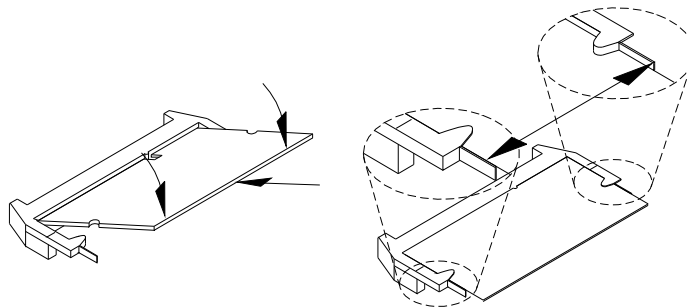
N450 supports SO-DIMM x 1 (w/o ECC), Max. 1GB , Single channel

D510 supports SO-DIMM x 1 (w/o ECC), Max. 2GB , Single channel

Installing and Removing Memory Modules

To install the DDR2 modules, locate the memory slot on the board and perform the following steps:

1. Hold the DDR2 module so that the key of the DDR2 module aligns with that on the memory slot. Insert the module into the socket at a slight angle (approximately 30 degrees). Note that the socket and module are both keyed, which means that the module can be installed only in one direction.
2. To seat the memory module into the socket, apply firm and even pressure to each end of the module until you feel it slip down into the socket.
3. With the module properly seated in the socket, rotate the module downward. Continue pressing downward until the clips at each end lock into position.
4. To remove the DDR2 module, press the clips with both hands.





Setting the Jumpers

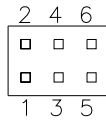
Jumpers are used on MI888 to select various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your needs. The following lists the connectors on MI888 and their respective functions.

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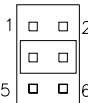
JP1: LCD Panel Power Selection

JP2	LCD Panel Power
	3.3V
	5V

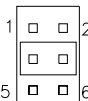
JP3, JP4, JP5: RS232/422/485 (COM1) Selection

COM1 Function	RS-232	RS-422	RS-485
Jumper Setting (pin closed)	JP5: 1-2	JP5: 3-4	JP5: 5-6
	JP3: 3-5 & 4-6	JP3: 1-3 & 2-4	JP3: 1-3 & 2-4
	JP4: 3-5 & 4-6	JP4: 1-3 & 2-4	JP4: 1-3 & 2-4

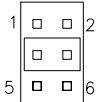
JP6: COM1 RS232 RI/+5V/+12V Power Setting

JP6	Setting	Function
	Pin 1-2 Short/Closed	+12V
	Pin 3-4 Short/Closed	RI
	Pin 5-6 Short/Closed	+5V

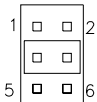
JP8: COM4 RS232 RI/+5V/+12V Power Setting

JP8	Setting	Function
	Pin 1-2 Short/Closed	+12V
	Pin 3-4 Short/Closed	RI
	Pin 5-6 Short/Closed	+5V



JP9: COM3 RS232 RI/+5V/+12V Power Setting

JP9	Setting	Function
	Pin 1-2 Short/Closed	+12V
	Pin 3-4 Short/Closed	RI
	Pin 5-6 Short/Closed	+5V

JP7: COM4 RS232 RI/+5V/+12V Power Setting

JP7	Setting	Function
	Pin 1-2 Short/Closed	+12V
	Pin 3-4 Short/Closed	RI
	Pin 5-6 Short/Closed	+5V

JP11: Clear CMOS Setting

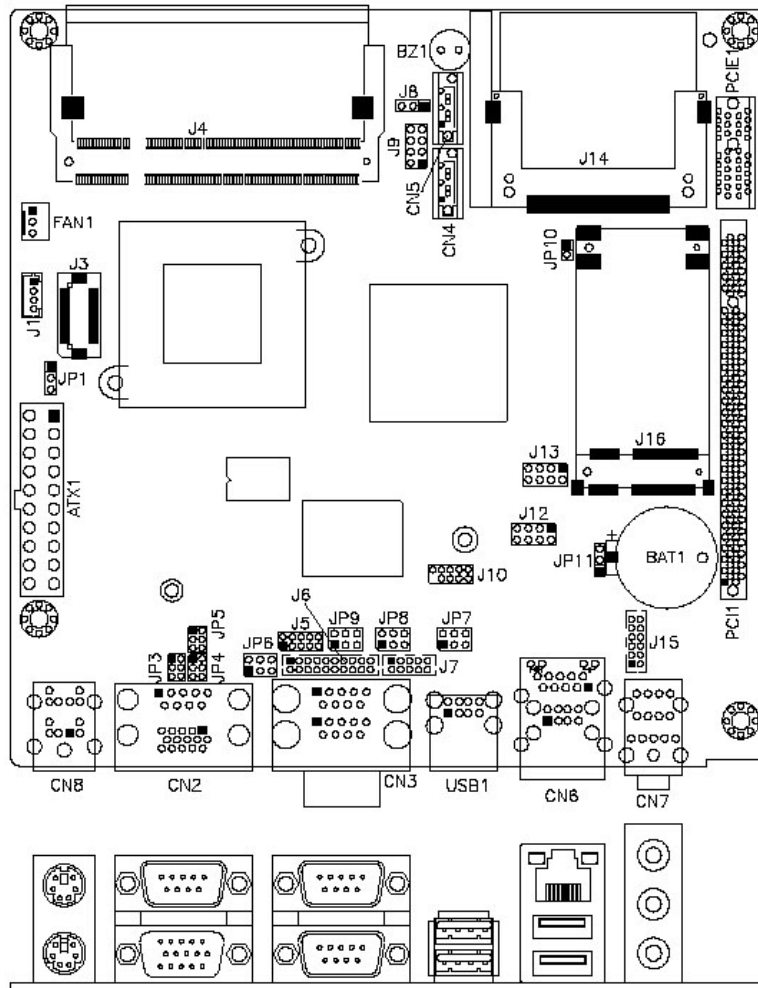
JP11	Setting
	Normal
	Clear CMOS

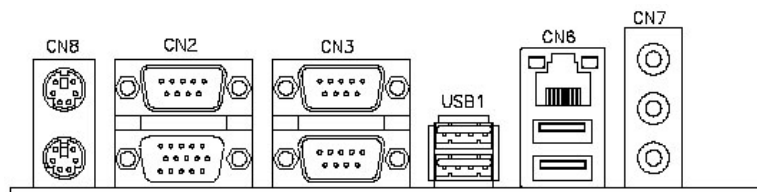
Connectors on MI888

The connectors on MI888 allows you to connect external devices such as keyboard, floppy disk drives, hard disk drives, printers, etc. The following table lists the connectors on MI888 and their respective functions.

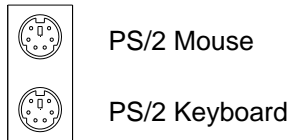
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Connector Locations on MI888



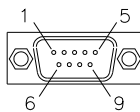


CN8: PS/2 Keyboard and PS/2 Mouse Connectors

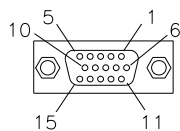
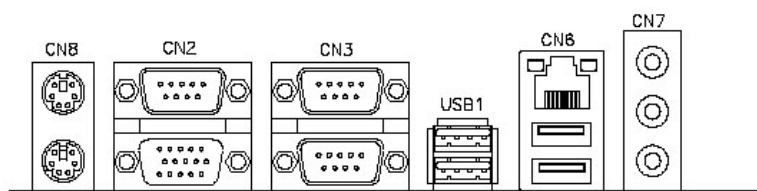


Signal Name	Keyboard	Mouse	Signal Name
Keyboard data	1	1	Mouse data
N.C.	2	2	N.C.
GND	3	3	GND
5V	4	4	5V
Keyboard clock	5	5	Mouse clock
N.C.	6	6	N.C.

CN2: COM1 RS232/RS422/RS485 and VGA Connector



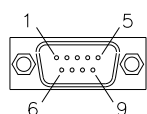
Pin #	Signal Name		
	RS-232	R2-422	RS-485
1	DCD	TX-	DATA-
2	RX	TX+	DATA+
3	TX	RX+	NC
4	DTR	RX-	NC
5	Ground	Ground	Ground
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC
10	NC	NC	NC



VGA

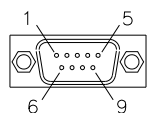
Signal Name	Pin #	Pin #	Signal Name
Red	1	2	Green
Blue	3	4	N.C.
GND	5	6	GND
GND	7	8	GND
N.C.	9	10	GND
N.C.	11	12	N.C.
HSYNC	13	14	VSYNC
NC	15		

CN3: COM2/RS232 and COM3/RS232 Connector



COM2/RS232

Signal Name	Pin #	Pin #	Signal Name
DCD	1	6	DSR
RXD	2	7	RTS
TXD	3	8	CTS
DTR	4	9	RI
GND	5	10	Not Used



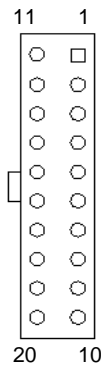
COM3/RS232

Signal Name	Pin #	Pin #	Signal Name
DCD	1	6	DSR
RXD	2	7	RTS
TXD	3	8	CTS
DTR	4	9	RI
GND	5	10	Not Used

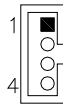
CN6: 10/100/1000 RJ-45 and USB3/4 Ports

USB1: USB5/6 Ports

CN7: Line-in, Line-out & Microphone Connector

ATX1: ATX Power Supply Connector

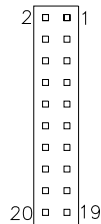
Signal Name	Pin #	Pin #	Signal Name
3.3V	11	1	3.3V
-12V	12	2	3.3V
Ground	13	3	Ground
PS-ON	14	4	+5V
Ground	15	5	Ground
Ground	16	6	+5V
Ground	17	7	Ground
-5V	18	8	Power good
+5V	19	9	5VSB
+5V	20	10	+12V

J1: LCD Backlight Connector

Pin #	Signal Name
1	+12V
2	Backlight Enable
3	Brightness Control
4	Ground

J3 : LVDS(18bit) Connectors

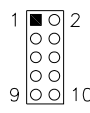
The LVDS connectors on board



Signal Name	Pin #	Pin #	Signal Name
TX0-	2	1	TX0+
Ground	4	3	Ground
TX1-	6	5	TX1+
5V/3.3V	8	7	Ground
NC	10	9	NC
TX2-	12	11	TX2+
Ground	14	13	Ground
TXC-	16	15	TXC+
5V/3.3V	18	17	ENABKL
+12V	20	19	+12V

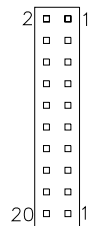
J4: DDR2 SO-DIMM

J5: Digital I/O



Signal Name	Pin	Pin	Signal Name
GND	1	2	VCC
OUT3	3	4	OUT1
OUT2	5	6	OUT0
IN3	7	8	IN1
IN2	9	10	IN0

J6: COM2/RS232, COM3/RS232 Serial Port



Signal Name	Pin #	Pin #	Signal Name
DSR	2	1	DCD
RTS	4	3	RXD
CTS	6	5	TXD
RI	8	7	DTR
NA	10	9	Ground
DSR	12	11	DCD
RTS	14	13	RXD
CTS	16	15	TXD
RI	18	17	DTR
NA	20	19	Ground

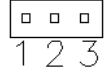
J7: COM4/RS232 Serial Port



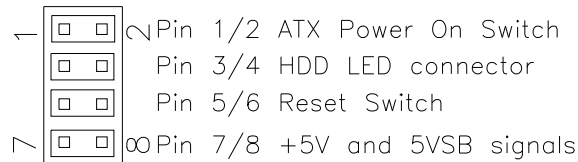
Signal Name	Pin #	Pin #	Signal Name
DCD, Data carrier detect	1	6	DSR, Data set ready
RXD, Receive data	2	7	RTS, Request to send
TXD, Transmit data	3	8	CTS, Clear to send
DTR, Data terminal ready	4	9	RI, Ring indicator
GND, ground	5	10	Not Used

J8: Power LED

The power LED indicates the status of the main power switch.



Pin #	Signal Name
1	Power LED
2	No connect
3	Ground

J9: System Function Connector**ATX Power ON Switch: Pins 1 and 2**

This 2-pin connector is an “ATX Power Supply On/Off Switch” on the system that connects to the power switch on the case. When pressed, the power switch will force the system to power on. When pressed again, it will force the system to power off.

Hard Disk Drive LED Connector: Pins 3 and 4

This connector connects to the hard drive activity LED on control panel. This LED will flash when the HDD is being accessed.

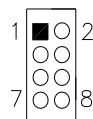
Pin #	Signal Name
4	HDD Active
3	5V

Reset Switch: Pins 5 and 6

The reset switch allows the user to reset the system without turning the main power switch off and then on again. Orientation is not required when making a connection to this header.

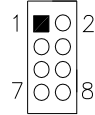
+5V and 5VSB Signals: Pins 7 and 8

Pin #	Signal Name
7	+5V
8	+5VSB

J10: SPI Flash Connector (factory use only)**J12: USB5/USB6 Connector**

Signal Name	Pin	Pin	Signal Name
Vcc	1	2	Ground
D-	3	4	D+
D+	5	6	D-
Ground	7	8	Vcc

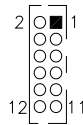
J13: USB7/USB8 Connector



Signal Name	Pin	Pin	Signal Name
Vcc	1	2	Ground
D-	3	4	D+
D+	5	6	D-
Ground	7	8	Vcc

J14: Compact Flash Connector

J15: Audio Connector (DF11 Connector)



Signal Name	Pin #	Pin #	Signal Name
LINEOUT_R	2	1	LINEOUT_L
Ground	4	3	JD_FRONT
LINEIN_R	6	5	LINEIN_L
Ground	8	7	JD_LINEIN
MIC-In	10	9	MIC_L
Ground	12	11	JD_MIC1

J16: Mini PCIE Connector

CN4, CN5: SATA Connectors

PCI1: PCI Slot (supports 2 Master)

PCIE1: PCIEX1 Slot

FAN1: CPU Fan Power Connector

This is a 3-pin header for system fans. The fan must be a 12V (500mA).



Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection